

Appl. No. : 09/03,172
Filed : August 21, 2000

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended): A method for preventing freezing at an outlet of a fire extinguisher, wherein said fire extinguisher contains fire extinguisher fluid, said method comprising:

~~contacting the fire extinguisher fluid with a drying agent, thereby removing water from the fire extinguisher fluid,~~

~~wherein said drying agent is contacted with said fire extinguisher fluid inside the fire extinguisher~~

providing a container with a drying agent therein, the container having walls with a plurality of openings therein sized to confine the drying agent in the container but to permit fire extinguisher fluid to enter the container;

inserting said container into a fire extinguisher bottle with the container remaining unattached to the bottle so that it is readily removable;

spacing the container from said outlet to ensure that the container does not clog the outlet; and

introducing fire extinguisher fluid into the bottle and immediately into contact with the drying agent to remove water from the fluid.

2. (Canceled)

3. (Original): The method of Claim 1, wherein said fire extinguisher fluid comprises bromotrifluoromethane.

4. (Original): The method of Claim 1, wherein said drying agent comprises a zeolite.

5. (Original): The method of Claim 4, wherein said zeolite is molecular sieve 3A.

6. (Original): The method of Claim 4, wherein said zeolite is molecular sieve 4A.

7. (Original): The method of Claim 1, wherein said fire extinguisher fluid is contacted with said drying agent for a period of at least 2 days.

8. (Original): The method of Claim 1, wherein said fire extinguisher fluid is a halocarbon or halohydrocarbon.

Appl. No. : 09/03,172
Filed : August 21, 2000

9. (Original): The method of Claim 1, wherein said fire extinguisher fluid is selected from the group consisting of bromotrifluoromethane, iodotrifluoromethane, chlorotetrafluoroethane, HCFC-22, 1,1,1,3,3,3-hexafluoropropane, HFC-227, FC-218, FC-3110, HFC-134a, pentafluoroethane, FC-318, HFC-32/125, FC-116, and trifluoromethane.

10. (Original): The method of Claim 1, wherein said fire extinguisher fluid contains less than 40 ppm of water after said contacting.

11. (Original): The method of Claim 1, wherein said drying agent is in the form of a shaped solid.

12. (Original): The method of Claim 11, wherein said drying agent is in the form of pellets.

13-14. (Canceled)

15. (Currently amended): An apparatus for preventing freezing at an outlet of a fire extinguisher, said apparatus comprising:

a fire extinguisher bottle; and

~~a removable container having a plurality of openings in the container, wherein said removable container contains a drying agent, and~~

~~wherein said removable container is removable from inside said fire extinguisher bottle;~~

a container in the bottle having walls with a plurality of openings therein sized to confine a drying agent in the container but to permit fire extinguisher fluid to enter through the openings into the container, said container being open to the interior of the bottle so that as soon as fire extinguisher fluid is introduced into the bottle, the fluid comes into contact with the drying agent.

16. (Canceled)

17. (Original): The apparatus of Claim 15, wherein said removable container is generally tubular shaped.

18. (Original): The apparatus of Claim 15, wherein said removable container is made, at least in part, of mesh.

19. (Original): The apparatus of Claim 18, wherein the mesh is made of metal.

20. (Original): The apparatus of Claim 19, wherein the mesh is made of stainless steel.

21. (Currently amended): The apparatus of Claim 15, including wherein said removable container further comprises at least one flexible projection on the exterior of said container to space the container from the outlet.

22. (Currently amended): An apparatus for preventing freezing at an outlet of a fire extinguisher, said apparatus comprising:

a fire extinguisher bottle;

a container having a plurality of openings in the container, wherein the container contains a drying agent;

wherein said container is removable from inside said fire extinguisher bottle; and said container further comprises The apparatus of Claim 21, wherein said at least one flexible projection on said removable container to prevents said removable container from plugging an outlet of the fire extinguisher.

23. (Currently amended): An apparatus for preventing freezing at an outlet of a fire extinguisher, said apparatus comprising:

a fire extinguisher bottle;

a container having a plurality of openings in the container, wherein the container contains a drying agent;

wherein said container is removable from inside said fire extinguisher bottle; and said container further comprises The apparatus of Claim 21, wherein said at least one flexible projection is comprising a flexible wire having at least two ends, wherein at least two ends of said flexible wire are attached to said removable container, thereby forming a flexible projection.

24. (Original): The apparatus of Claim 15, wherein said removable container is removable from said fire extinguisher bottle through an outlet of said fire extinguisher bottle.

25. (Original): The apparatus of Claim 15, wherein said drying agent is a molecular sieve.

26. (Original): The apparatus of Claim 25, wherein said molecular sieve is 3A or 4A molecular sieve.

27. (Original): The apparatus of Claim 23, wherein said container is generally tubular shaped, and said wire extends beyond opposite ends of the tube so that the tube is blocked by the wire from entering an outlet from the bottle.

Appl. No. : 09/13,172
Filed : August 21, 2000

28. (New) The apparatus of Claim 15 wherein said container when positioned in said bottle remains unattached to the container so as to be readily removable, and said container includes flexible structure attached to the container that spaces the container from interior walls of the bottle and restricts movement of the container within the bottle when the bottle is subjected to movement.

29. (New) The apparatus of Claim 28 wherein said flexible structure is configured to be collapsible or compressible to facilitate insertion or removal of the container from the bottle and is restorable within the bottle to space the container from the interior walls of the bottle.

30. (New) An apparatus for preventing freezing at an outlet of a fire extinguisher, said apparatus comprising:

a container having self-supporting walls with a plurality of openings formed therein that are sized to confine a drying agent in the form of pellets or other small particles, the openings being sufficiently large to allow fire extinguisher fluid to readily flow into the container when the container is positioned in a fire extinguisher bottle; and

means extending outwardly from the exterior of the container for spacing the container from interior walls of a fire extinguisher bottle, but open to the bottle interior.

31. (New) The apparatus of Claim 30 wherein said spacing means is collapsible towards the container to facilitate insertion and removal of the container from the bottle.

32. (New) The apparatus of Claim 30 wherein said spacing means comprises a pair of wire loops with each loop having ends secured to opposite ends of a container with the loops extending outwardly from side walls of the container on opposite sides of the container, said wire loops being bendable or collapsible towards the container to facilitate insertion or removal of the container from the bottle.

33. (New) The apparatus of Claim 30 wherein said spacing means comprises a layer of sponge-like foam attached to the exterior of the container.

34. (New) The apparatus of Claim 30 wherein said container comprises a tubular shape and metal mesh walls.